STATE CLEAN ENERGY PROGRAM GUIDE

STATE-BASED FINANCING TOOLS TO SUPPORT DISTRIBUTED AND COMMUNITY WIND PROJECTS

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INTRODUCTION

Commercial wind-power installations in the United States continue to grow at a rapid pace, with over 35,000 megawatts (MW) of wind energy now installed. Even in 2009, during the height of the global recession and credit crunch, 10,000 MW of new wind capacity was installed in the U.S., representing a 39% increase in total capacity (AWEA, 2010). A combination of state and federal policies are driving this robust wind project growth, including state renewable portfolio standards (RPS), the federal production tax credit, and key policy changes under the American Reinvestment and Recovery Act (ARRA). Of particular note, ARRA allows wind developers/investors to claim a 30% investment tax credit or 30% cash grant in lieu of tax credit rather than the 10-year production tax credit. These ARRA provisions have made projects more financially attractive and reduced dependency on the shrinking pool of tax equity project investors. Finally, state-based clean energy fund support for wind projects continues to be an important source of financing for wind projects, especially when designed to address private finance gaps.

To complement commercial wind development, states increasingly are recognizing the importance of supporting community[1] and distributed on-site[2] wind energy projects. These projects can play an important role in building public support for wind energy, have shorter development timelines, and can easily be integrated into electricity distribution systems. The purpose of this program guide is to review

[1] Community wind projects generally refer to wholesale wind energy projects in which no power is used on-site and the project has significant local ownership and management in the form of private landowners and investors, municipal electric utilities, or rural electric cooperatives. While there are no particular project size constraints, community wind projects would typically use megawatt-scale wind turbines.

[2] Distributed, onsite wind projects (sometimes referred to as "behind-the-meter") refer to projects in which most of the electricity generated is used by, although not necessarily owned by, an adjacent municipal, public, or commercial facility. Any excess power not used by the facility is sent onto the distribution grid and is "net metered" through a monthly or annual billing true-up.

the financing role that states, and specifically state clean energy funds, have played and can play in supporting community and distributed wind projects.

The guide describes specific financing assistance and tools that states can provide to support smaller-scale wind projects in the future. While many of these tools are applicable to a broad range of renewable energy technologies, several are unique to the specific development cycle and capital requirements of wind energy projects. To put these tools in context, the guide first provides some background on (1) the current role of state clean energy funds in supporting wind projects and (2) existing federal financial incentives in supporting wind development. The federal context is particularly critical for states to understand in designing state wind financing tools that can complement federal support.

THE CURRENT ROLE OF STATE CLEAN ENERGY FUNDS IN SUPPORTING WIND ENERGY

In their early years, several state clean energy funds (CA, NY, OR, PA) provided modest grant support to commercial, large-scale wind projects. However, as the wind industry has grown – in the size and number of projects, and in the number of active lenders and equity investors attracted to these projects – and as wind project costs have declined, most state clean energy programs have recognized that their support is not needed by commercial developers and can be more effectively targeted at other renewable energy technologies, markets, and project sizes.

Today, a number of state clean energy funds (CA, CT, MA, NJ, NY, OH, OR and WI) provide rebates and grants for distributed wind—both residential-scale (under 10 kW) and larger municipal or industrial "behind the meter" projects. The states have targeted these smaller-scale applications both to overcome high, upfront capital cost barriers (installed costs can equal or exceed $5,000 per kW of capacity) and to advance market development and infrastructure for distributed and community wind. While this direct project support by states has been significant, the actual number of projects supported through these funds has been less than 25% of the total number of small- and mid-sized wind turbines installed nationally. State funds have provided support to approximately 700 behind-the-meter wind projects of all sizes from 1999-2008 (CESA 2009), while nearly 3,000 of these turbines were installed in 2008 alone (AWEA 2009). This is in sharp contrast to the far broader support given by state clean energy programs to solar photovoltaic projects, of which more than 75% of all grid-connected PV projects have received state clean energy fund or utility support (Wiser et al, 2009).

The following case studies describe some of the leading state clean energy fund wind programs:

Massachusetts

Massachusetts has an ambitious wind energy development target of 2,000 MW of in-state development by 2020, including 500 MW of land-based wind. Although the state's small size and dense population make land-based wind energy development extremely challenging, the state's clean energy fund is focused on providing support for increased wind development.

To that end, the renewable energy program of the Massachusetts Clean Energy Center (MCEC) recently revised its wind incentive program to target three segments: micro-wind (projects under 100

kW), community wind (behind-the-meter projects over 100kW) and commercial wind (projects larger than 2MW).

1) The micro-wind program provides a hybrid-type, two-step incentive, involving an initial capacity-based rebate (manufacturer and turbine-specific, paid at the time of project installation) and followed by a performance incentive (based on actual energy generated, paid after the first year of operation). The total rebate is capped at $4.00/watt. The first capacity-based payment is made at time of system installation and is based on rated capacity of the turbine at 11 meters per second. The second payment is made at the end of the first year of operation and is based on actual system output. The rebate structure is designed to reward good site selection, the selection of high-performing turbines, and quality installation and maintenance.

2) The community-scale wind program provides grants for projects developed on private, institutional, or public sites and is specifically targeted at on-site applications (for example, wastewater treatment plants, community colleges and private businesses). The program provides three types of support:

    i. grants for site assessment at public sites only;

    ii. feasibility studies for detailed technical and economic analysis of up to $55,000 (non-public entities) and $80,000 (public entities) with no matching funds required;

    iii. design and construction support of up to $380,000 (non-public) and $570,000 (public) per project.

3) For commercial projects (multi-megawatt, no on-site use), the program provides feasibility study grants of up to $55,000 and unsecured project development (pre-construction) loans of up to $250,000. Projects are only eligible for development loans once a successful feasibility study has been completed.

In all three segments, MCEC's program is designed to ensure that the most feasible and best projects move forward. For example, the program's large community-scale construction grants are staged so that payouts are made throughout the development phase as milestones are achieved.

The increased pace of wind energy development in Massachusetts, the growing project pipeline and the recent completion of several successful community wind projects all attest to the program's success. New installed wind capacity in the state grew from less than 1 MW in 2008 to 10 MW in 2009, with an additional 14MW in the development pipeline.

For more information on the Massachusetts program, see www.masscec.com/index.cfm?pid=11044

Wisconsin

The Wisconsin Focus on Energy's small wind incentive program provides differential support for projects based on the rated output of the turbine selected, in recognition that the amount of energy produced is more important than capacity installed. The recently revised program provides grants of up to 25% of project cost – up to $35,000 for projects under 20 kW and up to $100,000 for projects from 20 kW up to 100 kW. Non-profits or government entities are eligible for up to a 35% cost share

but capped at the same maximum dollar amounts. The program pays higher incentives if the system owner makes recommended energy efficiency improvements before or at the same time as the wind turbine is installed. Wisconsin also has a performance-based grant program for "unlisted" turbines (those that are experimental or not yet tested by the program). Finally, to encourage good projects, the program supports site assessment costs with $200 for residential projects and up to 100% of costs for non-residential ones. The program has funded 68 small- and mid-sized turbines since inception.

The application for the Wisconsin incentive program, which details the eligibility requirements and incentive structure, can be downloaded at www.focusonenergy.com/files/Document_Management_System/Renewables/windelectricbusinesssystem_applicationform.pdf

New York

The New York State Energy Research and Development Authority's (NYSERDA) customer-sited wind incentive program provides manufacturer and model-specific rebates of up to 50% of project costs for onsite distributed wind energy projects. The program provides additional incentives for increased tower height (since power production increases exponentially with tower height) and rebate multipliers for projects owned by farms and government entities (1.2x) and schools with wind energy curricula (1.4x). Rebates are paid directly to installers – 65% of the incentive is provided at the time of equipment delivery to the project site, and the remaining 35% is paid out at time of successful project completion.

The NYSERDA wind incentive structure can be found at www.powernaturally.org/programs/wind/incentives.asp

FEDERAL SUPPORT FOR COMMUNITY AND DISTRIBUTED WIND PROJECTS

1. Federal Tax Incentives and Recent Effect of Federal Stimulus Provisions

Federal tax incentives have been a key driver of wind project investments. The federal production tax credit (PTC) is a credit against federal income tax liability, currently valued at 2.1 cents per kilowatt hour produced for the first ten years of a wind project. The PTC is only available to commercial projects producing and selling power on a wholesale basis. A federal investment tax credit (ITC) of 30% of the installed cost of wind energy systems has also been available but primarily used for on-site wind systems otherwise ineligible for the PTC. However, the recent financial crisis has reduced corporate tax liabilities and therefore the appetite for these tax credits.

In response, Congress included several provisions within ARRA to improve the effectiveness of federal government support for renewable energy. While these provisions are benefiting the entire wind industry, they are particularly beneficial to community and distributed wind[3] ownership structures and

[3] "Community wind" projects are those wind energy projects, regardless of size, which have a majority or significant local ownership share or are located on or owned by public entities.

financial viability. Key ARRA provisions benefiting these wind projects include:

(1) an option for project owners selling wholesale power to choose a 30% ITC in place of the PTC;

(2) an option to receive an equivalent federal cash grant in lieu of the ITC;

(3) the removal of subsidized energy financing restrictions on the ITC (which prevented the portion of a project financed with federal, state, or federal governmental program assistance such as low-interest loans to be eligible for the ITC).

By accepting 30% cash grants in lieu of tax credits, community wind project developers can now build projects without seeking outside investors with tax credit appetites and without creating complex ownership structures using the investor "flip" model.[4] In addition, grants in lieu of tax credits are also available for on-site, behind-the-meter projects. Further, any subsidized government financing no longer triggers a reduction in the PTC, ITC, or grant in lieu of tax credit (the so-called "haircut" or double dipping provisions). Use of the cash grant option also eliminates the passive activity-loss provisions that limited the ability of local investors to utilize losses from a project in its early years against active income. Table 1 summarizes the benefits of an ITC or cash grant over the PTC for community wind projects.

Table 1. Comparison of Benefits of PTC, ITC and Cash Grant for Community Wind Projects

Issue	PTC	30% ITC	30% Cash Grant
Alternative Minimum Tax	Exempt from AMT for just 4 of 10 years	Fully exempt from AMT	Not applicable
"Haircut" for other Grants	Reduced by value of any capital grants	Only reduced by grants that are *not* taxed as income (most are taxable)	
Haircut for Subsidized Financing (e.g., reduced interest rate loan)	Reduced by value of interest rate subsidy	ARRA eliminated this reduction	
Owner/Operator Requirement	Owner must also operate the project	No owner/operator requirement- allows for 3rd party ownership and leasing	
Power Sales	Power must be sold to 3rd party	Power can be sold or used "behind the meter"	
Performance Risk	PTC based strictly on performance	No impact of poor project performance	Not applicable
Passive Loss Limitations	For individuals, passive losses can only be used against passive (e.g., partnership) income		Not applicable since cash grant
Project Ownership Structure	Need investors with tax liability to utilize credits		Cash grant may reduce need for outside investors

Source: Adapted from Bolinger, "Revealing the Hidden Value that the Federal Investment Tax Credit and Treasury Cash Grants Provide to Community Wind Projects", January 2010, available at http:/eetd.lbl.gov/ea/emp

[4] Under a "flip model," a partnership between a local developer/owner and the outside tax investor is created. The outside investor owns a majority (90-99%) of the project during the period in which tax benefits are generated, then "flips" the project back to the local owner at a reduced price once the outside investor's targeted return on investment has been achieved.

2. Other Federal Support for Distributed Wind Projects

In addition to the federal tax incentives, there are several other federal programs that can play a valuable, complementary role to any state-based wind financing program.

REAP: The USDA Renewable Energy for America Program (REAP) was established as part of the 2002 Farm Bill and reauthorized in the 2008 Farm Bill, with a funding level for fiscal year 2010 of $99.3 million. REAP offers feasibility study grants of up to $50,000, capital grants of $500,000, and loan guarantees of up to $20 million on qualified renewable energy and energy efficiency projects (located in rural areas and owned by private rural entities or cooperatives). The capital grants are paid out upon project completion and therefore can be an important part of permanent financing for community wind projects. The USDA program has been the single, largest source of public funding for community-scale and small wind energy projects. Since inception, the REAP program has supported 282 community wind projects and 142 small wind turbines (Olsen 2010).

However, REAP is a nationally competitive grant and loan program that cannot support all project applicants in a given year. Further, the program is aimed at privately-owned, non-residential projects on farms and in rural areas. To this extent, REAP does not assist projects owned by municipalities or other public entities other than rural electric cooperatives, projects in areas not designated as rural, or projects owned by third-party investors who are not themselves "rural small businesses." Therefore, as discussed below, state clean funds can play a complementary role to the REAP program by offering both direct project assistance and other forms of financing, particularly to projects not eligible for REAP assistance.

CLEAN RENEWABLE ENERGY BONDS (CREBS): CREBs were initially authorized in the Energy Policy Act of 2005 and extended in 2006, 2008, and again in the American Recovery and Reinvestment Act of 2009. The CREBs program allows eligible entities (local government, municipal utilities, electric cooperatives and tribes) to apply for authorization from the Internal Revenue Service to issue tax-credit bonds for qualified renewable energy projects. Under these tax credit bonds, the issuing entity pays no interest. Instead, the bond purchaser receives a tax credit that is based on an underlying federal interest rate. Since program inception, the IRS has granted authorization to issue $1.2 billion of CREBs and $2.2 billion of "new CREBs" (new CREBs lower the eligible tax credit, since principal need not be paid until bond maturity).

The purpose of the CREB program is to provide federal support for renewable energy projects owned by public entities that are otherwise not eligible for federal production or investment tax credits and depreciation. While all CREB allocation rounds have been fully subscribed, the CREB program is not providing as much of an incentive as perhaps originally intended. There are three primary shortcomings[5]:

1) **Insufficient Return to Investors**: The tax credit rate for a project is the same regardless of the specific risk profile of the project or the borrower. Even without adjusting for risk, the

[5] An analysis of the CREBs program can be found in a recent briefing by the National Renewable Energy Laboratory, "Financing Public Sector Projects with Clean Renewable Energy Bonds," available at http://www.nrel.gov/docs/fy10osti/46605.pdf.

after tax value of the tax credits is below that of comparable U.S. Treasury notes. As a result, issuing entities may need to "sweeten" the bonds by paying additional cash interest.

2) **Principal Risk:** Because principal payments of "new CREBs" are due only at time of bond maturity, entities may need to provide other forms of collateral to bondholders.

3) **Transaction Costs:** The method of allocating CREB authorization favors smaller projects over larger ones (allocations are based on a smallest to largest projects), with average allocation awards under $1 million. The transaction and legal costs of issuing and placing these small bonds are high unless they can be bundled with other similar projects.

Program results and analysis suggest that while the CREB program has been popular and narrows the financial gap between private and public projects, states may still need to provide support to public projects (both grants and other financing tools) to make them economically viable. Further, the rise in third-party ownership of projects sited on and serving public loads may reduce the need for programs like CREBs, since these third-party owners can finance the projects and capture and utilize the federal tax benefits available to private entities.

QUALIFIED ENERGY CONSERVATION BONDS: Qualified Energy Conservation Bonds (QECBs) were established in ARRA as similar to but less restrictive than CREBs. Under the QECB program, $3.2 billion in bonding authority was automatically allocated to the states, which are then required to re-allocate a portion to its largest cities. Individual entities do not need to apply for a project-specific allocation from the Treasury Department. QECBs can be used to finance a broad range of projects and activities including energy efficiency and renewable energy projects on both public and private buildings.

HIRE ACT OF 2010: Passed on March 18, 2010 (HR 2847), the Hire Act made an important change to both CREBs and QECBs. Recognizing the reduced appetite for tax credit bonds, a provision of the bill now allows public entities issuing these bonds the option to receive a direct payment from the Department of Treasury equivalent to the amount of the non-refundable tax credit described above, which would otherwise accrue to the bondholder. This option was formerly limited to Build America Bonds.

ENERGY EFFICIENCY AND CONSERVATION BLOCK GRANTS: The EECBG program was authorized as part of the Energy Independence and Security Act of 2007 but first received funding through ARRA – $770 million in formula grants to states (with 60% sub-granted to municipalities, the remaining 40% to be used at the discretion of the state); in addition, $1.9 billion went to the largest cities and counties, and $500 million was allocated for competitive grants. Grants can be used for a wide range of energy efficiency and conservation initiatives *including the installation of renewable energy on government buildings*. These grants can be used directly to support distributed wind projects. However, projects would be subject to both the Davis-Bacon prevailing wage and Buy American provisions of ARRA.

DOE LOAN GUARANTEE PROGRAM: The Department of Energy's renewable energy loan guarantee program was originally authorized in the Energy Policy Act of 2005 and significantly expanded in a temporary program through ARRA. The current program is authorized for $8.5

billion of loan guarantees; projects using existing commercial technologies (including wind energy) are eligible[6].

In order to streamline and decentralize the process of loan guarantee approval, DOE has established a program in which state Development Finance Organizations (DFOs) can participate as "lender-applicants." A DFO could be a state finance authority, energy office, clean energy fund, or multiple entities working together. Under this program, DFOs will pre-screen projects for DOE loan guarantee approval. To ensure appropriate due diligence, the DFOS also will need to invest at least 5% of the total project costs either in the form of direct equity, loans, or a subordinated loan guarantee.

While there is neither a minimum nor maximum project size for the loan guarantee program, the program is targeted at larger investments and is likely not appropriate for community and distributed wind projects. However, it may be valuable for larger, commercial wind projects that are having difficulty securing project debt, and may be a useful model for states in contemplating the establishment of their own loan guarantee programs.

NEW STATE-BASED FUNDING APPROACHES TO SUPPORT DISTRIBUTED AND COMMUNITY WIND PROJECTS

To accelerate growth in smaller-scale wind project deployment, states can play a critical role through use of new financing tools, beyond traditional rebates and grants. Most of these tools provide states with significantly more leverage of private capital than direct grant assistance and fill important financing gaps for the project developers and owners. These tools can cover the full spectrum of a wind project life cycle, from early site assessments through construction and operations. Here are a few of the most promising state financing mechanisms:

FEASIBILITY STUDY GRANTS: The upfront costs of wind project feasibility studies can be considerable. However, such studies have significant value in ensuring project success. Rigorous feasibility studies can also identify marginal projects and prevent additional money (both public and private) from being spent on less viable projects. An important role for states is to offer feasibility grants to cover the costs associated with on-site wind monitoring and basic technical and economic analysis. Feasibility study grants can range in cost from a few thousand dollars for residential and small commercial projects utilizing remote (computer modeled) wind assessments, to tens of thousands of dollars required for on-site wind assessment, transmission studies, and financial modeling. These grants should be provided by states on a cost-share basis (at least 25% matching funds required) to discourage highly speculative projects. The Massachusetts wind program is a good example of an effective approach as it offers site assessment assistance to public entities and feasibility study grants to both public and private projects.

[6] The complete DOE solicitation for the Section 1705 loan guarantee program can be found at http://www.lgprogram.energy.gov/CTRE.pdf

PRE-DEVELOPMENT LOANS: Community wind projects can take several years to move from concept to groundbreaking and operation. During that multi-year period, project developers must invest significant resources in wind assessment, lease agreements, site engineering, transmission studies, power purchase agreements, permitting, and other legal fees. These costs can range up to $200,000 or more (Daniels 2010) and, for megawatt-scale turbines, are largely independent of project size (i.e., the same resources are required for a 2MW project as for a 20 MW project). Banks are unwilling to make unsecured loans for these expenses, particularly since there is high uncertainty as to whether a project will get built. Local developers often do not have the resources to invest in these development expenses themselves and are not willing to personally guarantee these loans. State clean energy funds, therefore, can play an important role in moving these projects forward by providing forgivable, low-interest, pre-development loans. To ensure that developers have "skin in the game," these loans should require a significant level of matching funds (50% or more). Depending on the size of these loans, states also may wish to consider requiring milestone performance deposits funded by the developer as security to ensure that satisfactory progress is made towards project development. Under this mechanism, the developer deposits funds in a state-controlled account that are held as security against avoidable project delays that are within the control of the developer. If the project moves forward, the developer should be required to repay the state loan at the time additional financing is secured and/or the project is completed and begins to generate cash flow. If the project is not completed, the state fund could forgive the loan.

EQUIPMENT PROCUREMENT LOANS: Developers are required to make significant down-payment deposits (up to 30%) on turbines. Due to the easing of turbine supply constraints, turbine deposits can now wait until a project has a high degree of certainty in moving forward (i.e., permits and financing secured). However, there is a potentially important role for clean energy funds in either providing loans for these turbine deposits or providing guarantees to the banks financing these deposits. Clean energy funds also can pre-screen eligible turbines to reduce performance risk.

CONSTRUCTION (BRIDGE) FINANCING: Lenders may be reluctant to provide construction financing, particularly to inexperienced wind project developers, even for projects with all permits, power purchase agreements, and permanent financing secured. Challenges facing developers in securing construction financing include: (1) construction loans cannot be sold to other banks like permanent debt, (2) project-related collateral (turbines, etc.) have little value to lenders, and (3) the developer's ability to get a project delivered on budget, on time, and operating properly is uncertain. These lending barriers are heightened for community-scale projects since these developers are generally less experienced and are more likely to rely upon local and regional lenders, which often lack wind energy project knowledge.

State clean energy funds are unlikely to have adequate resources to provide direct financing to multiple community or distributed wind projects. However, state funds can provide credit enhancement or guarantees for a portion of these construction loans. Under a credit enhancement program, a state program could participate in a loan by providing a portion (25%-33%) of the total loan amount on a subordinated basis to the senior (commercial) lender. With loan guarantees, the state fund would guarantee a significant portion of the loan amount against defaults. This type of state fund support would serve three purposes. First, because the state program has greater technical expertise in wind energy, it can provide the project due diligence

which banks are not able to perform. Second, the credit enhancement or guarantee protects lenders against principal loss to the extent of the subordinated portion of the debt or the guarantee. Finally, this state support should allow banks to lower interest rates on bridge financing by reducing lending risk. State funds would need to set aside reserves based on the estimated risk that a borrower would default on the construction financing.

PERMANENT FINANCING: Even when a wind project successfully moves through construction and commissioning with equity commitments, banks still can be reluctant to provide permanent term-debt financing. Despite the relatively low financing risk associated with completed wind energy projects (i.e., projects with good wind resource assessments, secured power purchase agreements, turbine warranties, maintenance agreements, and confirmed eligibility for federal tax credits or cash grants), lenders may still want permanent debt to be secured by other collateral. In addition, for small lenders, individual wind project loans may represent too large of a concentration of their overall loan portfolio in one sector.

To facilitate these loans, clean energy funds can offer credit enhancements or loan guarantees on longer-term debt. By performing project due diligence, the state fund can provide a stamp of approval on the project. The subordinated debt or loan guarantee can protect the lender against potential losses. Finally, this state support allows a lender to take a loan off of its books (to the extent of the subordinated portion or the guarantee), freeing up capital to make additional loans in the clean energy sector or to other industries. Again, the state program would need to set aside an appropriate reserve against potential defaults.

INTEREST RATE BUY-DOWNS: Under an interest rate buy-down program, a clean energy fund subsidizes the interest rate offered by a private lender for a qualified loan. Administratively, the easiest way to do this is to make a lump-sum payment to the lender equal to the present value of the foregone interest income to the lender over the life of the loan. The advantages to a clean energy fund of an interest rate buy-down program for community and distributed wind projects are (1) the approach involves limited capital requirements since the state fund does not need to expend the capital necessary to lend the principal amount of the loan, and (2) all default risk is shifted to private lenders. However, a major disadvantage is that program success relies upon outside lenders willing to make the loans and to bear exposure to principal and interest risk. In addition, while interest rate buy-downs are not a direct grant to the project developer, they have a similar programmatic financial effect to a grant from the perspective of a clean energy fund. For example, a 4% interest rate buy-down on an 8%, 10-year, $1 million loan has a net present value (and a cost to the fund) of approximately $180,000. NYSERDA has managed a similar program, the Energy$mart loan program, for several years. Although primarily targeted at energy efficiency improvements, renewable energy systems are eligible. See www.nyserda.org/loanfund for a description of the program.

PRODUCTION INCENTIVES: Performance-based incentives (PBIs) are a more effective way for clean energy funds to provide direct project assistance to wind projects than providing capacity-based rebates or grants, since they reward actual energy production and align the interests of the state fund with the project owner. Production incentives reduce the financial risk to public funds of poorly-performing projects. Because they are based on energy output, production incentives can ensure that applicants are thoughtful with technology, site selection, and project operation. A poorly performing project will receive less support than a higher performing one of

the same size. Performance-based incentives are particularly suitable for small wind turbines in which both turbine performance and project siting can be highly variable (since small wind turbine buyers may be motivated to install systems regardless of project economics at their particular site).

Clean energy funds can adopt a number of different production incentive models. These include:

- Multi-year incentive (per kWh) based on actual metered energy output. This was the approach initially taken by Minnesota in the mid-1990s.
- Expected performance-based buy-down, i.e., providing an upfront capacity-based rebate adjusted to the expected performance of the system, based on rated system efficiency and siting factors. Wisconsin and New York's wind rebate programs are tied to expected performance.
- Incentive holdbacks, where a portion (50% or more) of a rebate is paid one year after system installation upon submission of performance data. This approach is used by Massachusetts.

RPS SET-ASIDES: Because state Renewable Portfolio Standard policies encourage utilities to acquire "least cost" resources (normally large-scale wind or legacy biomass or hydropower), they have not been particularly effective in supporting smaller-scale, higher cost technologies. Therefore, an increasing number of states are designing or modifying RPS policies to provide differential support for distributed technologies, most often solar photovoltaics. States primarily are using "carve-outs" or "set-asides" – requiring a specific percentage of the RPS obligation to be met with a distributed generation resource (solar PV typically). Sixteen states now have RPS set-asides for solar or distributed generation.

To date, however, no state has adopted a similar set-aside for locally owned or community wind, despite the tool's potential value for support of distributed wind projects. Minnesota's RPS comes the closest to having a community wind set-aside by establishing a non-binding "goal" of 800 MW of locally owned wind and encouraging its utilities to consider CBED (community-based energy development) projects on an equal basis as commercially-owned projects. However, there is no enforcement mechanism behind this goal. New York also has a modest set-aside for "customer-sited" projects including wind energy.

Therefore, states with a strong interest in community or distributed wind project development may wish to establish a community wind set-aside in their RPS through legislation or regulatory action, with a schedule of achieving a certain number of megawatts of capacity by a certain date (e.g., 4% distributed wind generation by 2020). If established properly, this small wind set-aside requirement could provide a market-based financing tool for these projects. For example, by establishing a community wind alternative compliance payment (ACP)[7] at a level needed to financially support distributed and/or community wind projects, utilities would be encouraged to contract for the purchase of community wind renewable energy certificates (RECs) from local

[7] An alternative compliance payment for a wind set-aside would establish the upper limit for the cost of RPS wind compliance and serve as an enforcement mechanism. It would establish a backstop to protect the utility and ratepayers from unexpected cost impacts of a wind set-aside.

developers at a level above the price of "commodity RECs" but below the ACP level. Developers would then have a stream of expected REC payments that could be used to help secure financing for smaller-scale wind projects.

While the solar REC model adopted in New Jersey may not have direct applicability to the community or distributed wind market, analysis done by the state's Board of Public Utilities concludes that a set-aside with technology-specific RECs should have a lower long-term cost to ratepayers (and to clean energy funds) than a traditional rebate or performance-based incentive program. This is because, although the ACP level sets the maximum cost of acquiring these RECs, the dynamics of REC demand and supply should result in a market price well below this ACP level.

THIRD-PARTY OWNERSHIP AND DISTRIBUTED WIND

The growth in third-party ownership of solar photovoltaic systems on commercial and public buildings is also beginning to crossover to distributed wind installations. Under a third-party model, an outside entity installs, finances, owns and operates the wind turbine at a host site (a school, municipal facility or commercial/industrial facility), selling power to the facility at a long-term fixed price contract. The developer utilizes the project's tax benefits (which a public entity cannot do), and can sell renewable energy certificates associated with the project. This ownership model can be advantageous to both a project host and a state clean energy fund for several reasons. First, the experience of the developer can accelerate the development process and lower project risks and costs. Second, a project can move forward without the hosting facility needing to secure project financing. Third, because the outside developer/investor can utilize a project's federal (and any state) tax benefits, a state clean energy fund can provide a lower level of financial support than it might provide for publicly-owned projects. Because of these advantages, states should encourage local government, schools, and other public or private entities interested in distributed wind to consider partnering with a third-party developer. In addition, because public utility laws were written at a time of monopoly utilities and central generation facilities, states may need to revisit these laws to clarify that third-party owners can own these systems and sell electricity to their hosts without being treated as utilities.

CONCLUSION

State clean energy programs traditionally have supported small and distributed wind energy projects through direct project assistance in the form of rebates and grants. State clean energy programs are beginning to explore and implement other financing and assistance tools to increase the effectiveness of their support for distributed wind energy. The tools described in this guide can be effective to better leverage available public funds as well as to fill needed financing gaps faced by wind projects of many sizes, from small behind-the-meter residential and commercial projects to multi-turbine projects developed by public entities or local owners.

States are encouraged to explore all of these financing options. In choosing the most appropriate financing tool, a state should consider the context and objectives for wind development activity in the state, available financial and technical resources, and the local lending and investment climate. For additional information and technical assistance in evaluating and employing this wind finance tools, please contact: Charles Kubert, Clean Energy States Alliance at ckubert@cleanegroup.org or phone 802-272-1135.

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ABOUT CLEAN ENERGY STATES ALLIANCE

Clean Energy Clean Energy States Alliance (CESA) is a national nonprofit coalition of state clean energy funds and programs working together to develop and promote clean energy technologies and markets. CESA provides information sharing, technical assistance services and a collaborative network for its members by coordinating multi-state efforts, leveraging funding for projects and research, and assisting members with program development and evaluation.

Many states across the U.S. have established public benefit funds to support the deployment and commercialization of clean energy technologies. Eighteen states make up the core base of CESA membership. Though these clean energy funds, states are investing hundreds of millions of public dollars each year to stimulate the technology innovation process, moving wind, solar, biomass, and hydrogen technologies out of the laboratory and toward wider use and application in business, residential, agricultural, community and industrial settings. State clean energy funds are pioneering new investment models and demonstrating leadership to create practical clean energy solutions for
the 21st century.

Founded in 2003, CESA, managed by Clean Energy Group, is headquartered in Montpelier, Vermont, with staff based in Washington, D.C. and Chicago.

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